

Reclamation District No. 108

Pilot Well Development/Conjunctive Management Project

1. Project Description

<i>Project Type:</i>	Conjunctive water management
<i>Location:</i>	Northern Yolo County and Southern Colusa County
<i>Proponent(s):</i>	Reclamation District No. 108 (RD 108 or District) in collaboration with California Department of Water Resources (DWR)
<i>Project Beneficiaries:</i>	RD 108, Yolo-Zamora Water District (Y-ZWD), Colusa County Water District (CCWD), Dunnigan Water District (DWD), RD 787, Colusa Drain Mutual Water Company, the Delta and its environment
<u>Total Project Components:</u>	Short-term components, development of the conjunctive management in lieu groundwater recharge area and construction of an additional 5 to 10 wells within the groundwater pumping area
<i>Potential Supply:</i>	25,000 to 35,000 acre-feet per year (ac-ft/yr)
<i>Cost:</i>	\$26.3 million
<i>Current Funding:</i>	None
<u>Short-term Components:</u>	Pilot well/development
<i>Potential Supply (by 2003):</i>	15,000 to 20,000 ac-ft/yr
<i>Cost:</i>	\$1.31 million
<i>Current Funding:</i>	None
<i>Implementation Challenges:</i>	Coordination among water districts and state and local agencies, public education, water rights implications, environmental compliance
<i>Key Agencies:</i>	RD 108, DWR, Yolo and Colusa counties, Y-ZWD, DWD, CCWD, Reclamation District No. 787 (RD 787), U.S. Bureau of Reclamation (USBR), U.S. Fish and Wildlife Service (USFWS), California Department of Fish and Game (CDFG), environmental interest groups

Summary

In July 1997, DWR completed a pre-feasibility investigation of the potential to develop a conjunctive management project within the Lower Colusa Basin of Yolo and Colusa counties. The investigation was conducted in cooperation with RD 108, CCWD, and Y-ZWD and included analysis of two alternatives for conveyance and distribution of water to areas where in lieu groundwater recharge could be accomplished. Groundwater would be pumped during dry years from wells within RD 108, and the basin would recover during wet years through in lieu recharge. The study area encompasses approximately 300 square miles and is generally coextensive with the service areas of the districts within the southern portion of the Colusa Basin (see Figure 10A-1).

The eastern boundary of the study area is the Sacramento River, and the western boundary is along the eastern foothills of the Coast Range, which effectively marks the western edge of the groundwater basin. As part of the investigation, DWR installed 12 multiple-completion groundwater monitoring wells at selected locations throughout RD 108 (see Figure 10A-2). DWR is continuing to monitor the water levels and water quality of these wells, as well as three existing wells owned and operated by RD 108, and is evaluating the collected data from these and other existing wells in the area. DWR is also considering modification and expansion of the alternative groundwater recharge areas described in the pre-feasibility investigation.

RD 108 proposes to move forward with a conjunctive management program in cooperation with DWR. The initial phase, (short-term component), is the construction of five pilot wells within RD 108 to be completed within 18 months. The long-term component of the project is the development of the conjunctive management in lieu groundwater recharge area and construction of an additional 5 to 10 wells within the groundwater pumping area.

Reclamation District No. 108 Water Supply

RD 108 was formed in 1870 under the Reclamation District Act for the purpose of providing flood protection for farmland along the west side of the Sacramento River by constructing levees. In the early 1900s, the District began constructing and operating pumping plants for diversion of water from the Sacramento River and irrigation canals to provide delivery of water to farmland within southern Colusa and northern Yolo counties.

In 1964, the District entered into a water rights settlement contract with USBR that provided for delivery of supplemental water during the summer months from the Central Valley Project. Except during critical dry years, the District's surface water supply from the river has been able to meet the irrigation requirements of the 48,000-acre service area, and, in certain years, the District has been able to help its neighbors with authorized water transfers. Because of the District's established rights to surface water and its contract with USBR, Sacramento River water has supplied nearly all of the water needs of District lands.

Over the years, there has been only limited development of the groundwater supply for irrigation of lands, mostly to irrigate lands adjacent to the river corridor.

In the late 1950s and early 1960s, the District installed three irrigation wells within its northern area as a backup water supply during dry years. These wells have been used periodically as an emergency water source and, during the early 1990s, as a contributing

supply for the California drought water bank. The wells are being operated this year under a Forbearance Agreement with USBR and the Westlands Water District. However, since there has been very limited need and use of the groundwater aquifer underlying the District, the groundwater production capabilities are virtually untested and, therefore, virtually unknown.

Drainage and Reuse

The District is surrounded on three sides by flood control levees, e.g., Sacramento River on the east, Colusa Basin Drain on the west, and the 2047 Canal (Lateral 14A) on the south. There is no gravity drainage outlet; therefore, all water within the system that is in excess of irrigation needs must be pumped out or recycled within the District's irrigation distribution system. Drainage water is pumped at the Rough and Ready Pumping Plant into the Sacramento River for reuse and at the Riggs Ranch Pumping Plant into the Colusa Basin Drain for irrigation use by downstream farms.

Under the District's water management program, drainage water is also recycled within the irrigation service area and blended with water diverted from the river. Both drainage water and blended irrigation water quality are regularly monitored to maintain control of salinity levels within the range of acceptability for irrigation.

Existing Studies and Modeling

A comprehensive groundwater model of the lower Colusa Basin is being developed by DWR. In the next stage of the conjunctive management program (feasibility level investigation), DWR would evaluate the groundwater characteristics and survey water/aquifer interactions and the operational parameters of surface- and groundwater levels within the basin.

The pre-feasibility-level investigation by DWR evaluated several preliminary alternatives that would involve groundwater pumped within RD 108 in an effort to provide for in lieu recharge within either Y-ZWD or CCWD. The practicability of conveying surface water from the Sacramento River to the in lieu groundwater recharge areas is being reconsidered by the DWR. A more practical and economical approach is being considered that involves moving water by exchange through the Tehama-Colusa Canal (TC Canal) and possible extension thereof. Ongoing monitoring and analysis by DWR of the groundwater conditions within the lower Colusa Basin will improve the existing database. Figures 10A-3 and 10A-4 compare groundwater elevation contours for 1976 and 1996. The contours show water levels under dry-year conditions, prior to completion of the TC Canal, with conditions following the flood event of 1995. Figures 10A-1, 10A-2, 10A-3, and 10A-4 were excerpted from the DWR pre-feasibility investigation report.

Short-term Component

Development of the groundwater production capability within RD 108 is an important element of an in lieu conjunctive management program within the lower Colusa Basin. The initial phase of development would be the installation of five production wells. These pilot wells, installed to depths of 800 feet, would be completed and operating within 18 months and would have capacities ranging from 3,500 gallons per minute (gpm) to 6,000 gpm. Pumping lift is estimated to be on the order of 100 feet. The production wells would be

situated in strategic areas throughout the District, designed to minimize interference, and would be located adjacent to the main laterals to facilitate conveyance of groundwater into and through the District's irrigation distribution system. The groundwater investigation by DWR over the past several years, in monitoring groundwater levels and water quality within the several aquifers underlying the District, has resulted in preliminary data indicating that there is potential for production of significant quantities of good-quality groundwater. The pilot production well would prove this capability.

Quantified information on production capabilities of the aquifer and quality of the groundwater is critical to verifying the groundwater model being developed by DWR for the lower Colusa Basin. The model will provide the basis for evaluating the groundwater impacts of various conjunctive management scenarios in the District and the potential for regional projects. Successfully producing pilot wells would lead to the design of an expanded well field and construction of additional wells at sites selected by DWR under the long-term component of this proposed program.

Monitoring Wells

DWR has installed 12 multi-completion monitoring wells within RD 108 (see Figure 10A-2) that will be used to evaluate changes in groundwater levels and water quality. Studies to date have shown that water quality in most areas of the District is very good.

Long-term Component

The primary purpose of this evaluation is to evaluate the potential for this project to provide water supply benefits in the short-term (by end of 2003). As part of this initial evaluation, potential long-term components of the proposed project (defined as any part of the project proceeding past or initiated after December 2003) have been considered on a conceptual level. Further consideration and technical evaluation of long-term component feasibility and cost will occur as the next level of review under the Sacramento Valley Water Management Agreement. Long-term-component project descriptions are included in these short-term project evaluations only as a guide to the reader to convey overall project intent.

The long-term project would consist of a network of 10 to 15 District-owned and -operated groundwater wells capable of supplying from 25,000 to 35,000 ac-ft/yr to in lieu groundwater recharge areas. Five of these wells would be installed under the initial phase (short-term component). The groundwater recharge areas identified by DWR for the conjunctive management program are Y-ZWD and CCWD. Initially, DWR investigated delivery from the Sacramento River at the Knights Landing outfall gates. The project included up to six pumping facilities having significant capital costs. It appears that a more desirable option would utilize the TC Canal to convey water to the point or points where gravity delivery to the recharge area can take place. This approach would require less initial capital costs than the earlier alternatives proposed by DWR and would allow for incremental expansion of in lieu recharge as the project develops. There are also opportunities with other TC Canal water users, such as DWD.

2. Potential Project Benefits/Beneficiaries

The proposed conjunctive management project would produce potential local and regional benefits to water users and to the environment. The expected local beneficiaries are RD 108, Y-ZWD, CCWD, and DWD. Other local water user entities that may benefit through their participation are RD 787 and Colusa Drain Mutual Water Company. Potential beneficiaries would also include the Delta and its environment.

Water Supply

Full implementation of the groundwater production facilities is anticipated to develop a capability to extract up to 34,000 ac-ft/yr during dry and critical years. During wet years, water would be available for surface water delivery where groundwater pumping has resulted in declining and/or highly fluctuating water tables and, in certain areas, land subsidence. The decrease in groundwater pumping in the areas receiving the wet-year water would allow for in lieu recharge of the underlying aquifers.

Water Management

In addition to in lieu recharge of the underground, the groundwater production capacity could be utilized to reduce surface water diversions during dry years to allow additional flows in the river for requirements of downstream users, including aquatic species and increased flows in the Delta.

3. Project Costs

The cost opinions shown, and any resulting conclusions on project financial or economic feasibility or funding requirements, have been prepared for guidance in project evaluation from the information available at the time of the estimate. It is normally expected that cost opinions of this type, an order-of-magnitude cost opinion, would be accurate within +50 to -30 percent. Project costs were developed at a conceptual level only, using data such as cost curves and comparisons with bid tabs and vendor quotes for similar projects. The costs were not based on detailed engineering design, site investigations, and other supporting information that would be required during subsequent evaluation efforts.

The final costs of the project and resulting feasibility will depend on actual labor and material costs, competitive market conditions, actual site conditions, final project scope, implementation schedule, continuity of personnel and engineering, and other variable factors. As a result, the final project costs will vary from the opinions presented here. Because of these factors, project feasibility, benefit/cost ratios, risks, and funding needs must be carefully reviewed prior to making specific financial decisions or establishing project budgets to help ensure proper project evaluation and adequate funding.

Short-term Component

Estimated costs for the initial five wells are shown in Table 10A-1.

TABLE 10A-1

Estimated Costs

Reclamation District No. 108 Pilot Well Development/Conjunctive Management Project

Item	Total Cost x \$1,000
Production Wells — 5 each @ \$160,000	800
Land Acquisition — 2 acres @ \$5,000	10
Subtotal	810
Contingencies (30 percent)	240
Subtotal	1050
Design, Environmental Documentation, and Administration (25 percent)	260
Total	1,310

Long-term Component

The long-term project component involves installation of an additional 5 to 10 production wells and the conveyance of water to in lieu groundwater recharge areas. Preliminary design of surface water conveyance systems was prepared by DWR for delivery of water from the Sacramento River to lands within Y-ZWD and CCWD. Since Y-ZWD does not have a surface water distribution system, a new canal system would have to be constructed.

An alternative plan for Y-ZWD would be to convey surface water from an extension of the Tehama-Colusa Canal to a distribution system within the District. This plan is being investigated by DWR. According to preliminary design and cost analyses prepared by DWR, it is estimated that the capital costs for an extension of the TC Canal and distribution system to convey surface water to the groundwater recharge area of Y-ZWD would be on the order of \$25 million.

CCWD and DWD have existing pipeline distribution systems connected to the TC Canal from which they presently receive delivery of Central Valley Project water from USBR. Supplemental surface water can be conveyed through these existing distribution systems. If surface water can be delivered through the Tehama Colusa Canal under a conjunctive management exchange arrangement, there would be no capital cost component for this recharge alternative serving either or both of these districts.

4. Environmental Issues

As noted in Section 2, this project is anticipated to provide benefits in the form of increased water supply, more flexible water management, and improved water quality – all of which could improve the greater Sacramento River ecosystem. Additionally, the project could provide environmental benefits at the reservoir site by providing waterfowl habitat.

Project implementation would also result in impacts to the environment, notably through the conversion of open space to recharge basins. Construction-related impacts would also occur prior to project implementation. Construction-related impacts would be similar to other, common construction projects that occur near seasonal drainages and waterways. It is likely that the appropriate level of environmental documentation necessary for this project would be an environmental impact statement/environmental impact report (EIS/EIR).

Implementation of the project would also require issuance of permits from various regulatory agencies. Following is a summary of the likely permitting requirements. Additional permitting requirements may be identified pending further project refinement.

- **State Water Resources Control Board**—Applications for new water rights and changes in point of diversion would be required.
- **Regional Water Quality Control Board**—Large amounts of earthwork would be required for the recharge basins. Depending upon project configuration and location, Water Quality Certification under the federal Clean Water Act may be required for construction.
- **Federal and State Endangered Species Act**—Consultation with state and federal resource agencies (e.g., USFWS, NMFS, CDFG) may be required to protect special-status species and their habitat.
- **U.S. Army Corps of Engineers (COE)**—The project may affect wetland habitat and require a permit for discharge of dredged or fill material pursuant to Section 404 of the federal Clean Water Act.
- **State Lands Commission**—Project would need to consult with State Lands Commission on the public agency lease/encroachment permitting for use of state lands.
- **State Reclamation Board**—The project may be subject to rules regarding encroachment into existing floodways.
- **Federal Emergency Management Agency (FEMA)**—Letters of map revision need to be filed with FEMA for projects that affect Flood Insurance Rate Maps.
- **Division of Safety of Dams (DSOD)**—Design and configuration of the storage basins may require permitting and compliance with Dam Safety because of the height of the retention walls. DSOD is structured within DWR.
- **Advisory Council on Historic Preservation**—Consultation under Section 106 of the National Historic Preservation Act may be necessary if historical resources are affected by construction of the project.
- **California Department of Fish and Game**—If alterations to streams or lakes are required as part of project implementation, a Streambed or Lakebed Alteration Agreement may be required.
- **Local governments and special districts**—Specific agreements for rights-of-way, encroachments, use permits, or other arrangements may need to be made with local entities in the vicinity of the project.

A draft California Environmental Quality Act (CEQA) environmental checklist has been prepared for this proposed project and is included as an attachment to this evaluation. The checklist provides a preliminary assessment of the environmental areas of concern, as well as areas that are not likely to be of concern, associated with this project. The checklist would be finalized as part of the environmental compliance required for project implementation.

5. Implementation Challenges

Project implementation would occur in two phased periods of time, the final phase having the more significant challenges because of its potential size and complexity. Some of these challenges are discussed below.

Coordination among Public and Private Entities

Close coordination would be required among local, state, and federal entities. Reliable communication and integrated coordination would be required to create a successful project.

Coordination between Concurrent Project

Numerous parties are investigating similar conjunctive management projects throughout the Sacramento Valley. Coordination between those involved with these investigations is very important. Such coordination can avoid duplication of effort, avoid the nullification of project benefits through competing projects, and optimize the benefits of these projects to the watershed.

Lack of Sufficient Groundwater Data

The lower Colusa Basin has limited groundwater information available, particularly within RD 108. DWR has been compiling data from its monitoring wells within RD 108 and elsewhere in the lower Colusa Basin and is working on a groundwater model for the basin.

Water Rights Implications

RD 108's participation would involve the District's existing water rights. Surface water diversions would be expected to decrease in some years, while full contract quantities would be utilized in other years.

Public Perception

Landowners may have concerns about possible groundwater overdraft. Aquifer recharge aspects of this project may tend to alleviate these concerns. Monitoring and modeling of groundwater levels would be an essential part of this project both technically and politically.

Environmental Regulatory Compliance

Extensive environmental documentation, surveying, monitoring, and permitting would be required for this project. Project scheduling would have to reflect environmental regulatory requirements including any limitation on windows of construction.

Land Acquisition

It is probable that land or easements would have to be acquired for the production wells and for new conveyance and delivery systems. Some landowners may object to acquisition of their lands.

Key Stakeholders

The key stakeholders expected to be associated with or impacted by this conjunctive management and recharge project and their anticipated roles, concerns, and/or issues are identified in Table 10A-2.

TABLE 10A-2

Stakeholder Roles and Issues

Reclamation District No. 108 Pilot Well Development/Conjunctive Management Project

Stakeholder	Role/Concerns/Issues
RD 108	<ul style="list-style-type: none"> Project proponents and direct beneficiary
Yolo and Colusa counties: CCWD, DWD, Y-ZWD	<ul style="list-style-type: none"> Groundwater management objective, compliance with AB-3030 plans
DWR	<ul style="list-style-type: none"> Planning for conjunctive management within lower Colusa Basin water rights
Local landowners	<ul style="list-style-type: none"> Impacts on both short-term and long-term groundwater levels Acquisition of possible land easement and/or purchase
USBR	<ul style="list-style-type: none"> Water rights Integration with other regional management concepts and programs
Environmental interest groups	<ul style="list-style-type: none"> In-stream flow impacts, fishery impacts, habitat and Endangered Species Act issues, land use water quality impacts

6. Implementation Plan

The following major steps are proposed to implement the project.

Short-term Component

Task 1.1 Site selection—Coordinate with DWR in selecting the most appropriate sites to construct the pilot wells, considering the following criteria: water quality, long-term yield, environmental adaptability, and proximity to distribution system. Obtain land rights where necessary. Prepare required environmental documentation. (3 months)

Task 1.2 Prepare design—Prepare plans and specifications for well construction and contract documents, and obtain appropriate environmental clearance and permits. (3 months)

Task 1.3 Bid process—Conduct bidding, select contractor, and award bid. (2 months)

Task 1.4 Construction—Complete pilot well drilling and testing to determine production capability. Size the pump and pump driver as indicated by pump test, and order equipment. Install equipment and connect well to distribution system. (8 months)

Task 1.5 Short-term program implementation—Operate wells to establish production capabilities and data for DWR analysis. (ongoing)

Long-term Component (To be better defined upon further evaluation of the long-term component)

Task 2.1 Analysis of data—Data collected during the RD 108 pilot study would be analyzed by DWR to establish the parameters of the Conjunctive Management Program. (1 year—beginning 1 year after successful completion of Task 1.4. This allows 1 year to gather data from the newly installed wells.)

Task 2.2 Preliminary design—The preliminary design would involve engineering design of the major facilities to a 30-percent design level. This level of design would include such details as sizes, locations, and footprints of all major facilities. This information would support key implementation steps such as right-of-way acquisition, soils testing, mapping, and permitting and environmental studies. Possible review by resource agencies and local sponsor may occur following the preliminary design so that comments may be incorporated into the final design. (4 months)

Task 2.3 Environmental assessment/environmental impact report (EA/EIR)—The EA/EIR would be based on the preliminary design and would confirm the potential impacts and required mitigation, if any, for the project. (1 year)

Task 2.4 Final design—Final design would proceed following the EA/EIR work. This would involve producing engineering drawings, specifications, and other final contract documents suitable to bid and construct the project facilities. Possible review by resource agencies and local sponsor may occur following the final design. (1 year)

Task 2.5 Permitting—The various permits would be obtained using the final design as the basis for permitting requirements. This process may be initiated before completion of final design. (9 months)

Task 3.1 Construction and construction management (CM)—Construction oversight is required to enforce contract requirements and ensure a quality, functional end-product. Typical CM activities include (1) evaluating bids; (2) reviewing, approving, and testing proposed products and materials; (3) observing, photographing, and documenting all aspects of construction; (4) managing changes during construction; and (5) estimating contractor inventories, progress, and progress payments. Construction would potentially be phased over several years, given the size and complexity of the project. (1.5 years)

Task 4.1 Operation and monitoring—Long-term operations and monitoring of the project would begin following completion of construction.

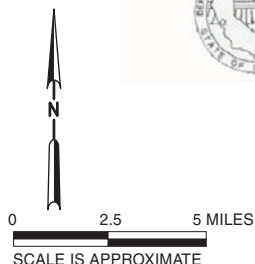
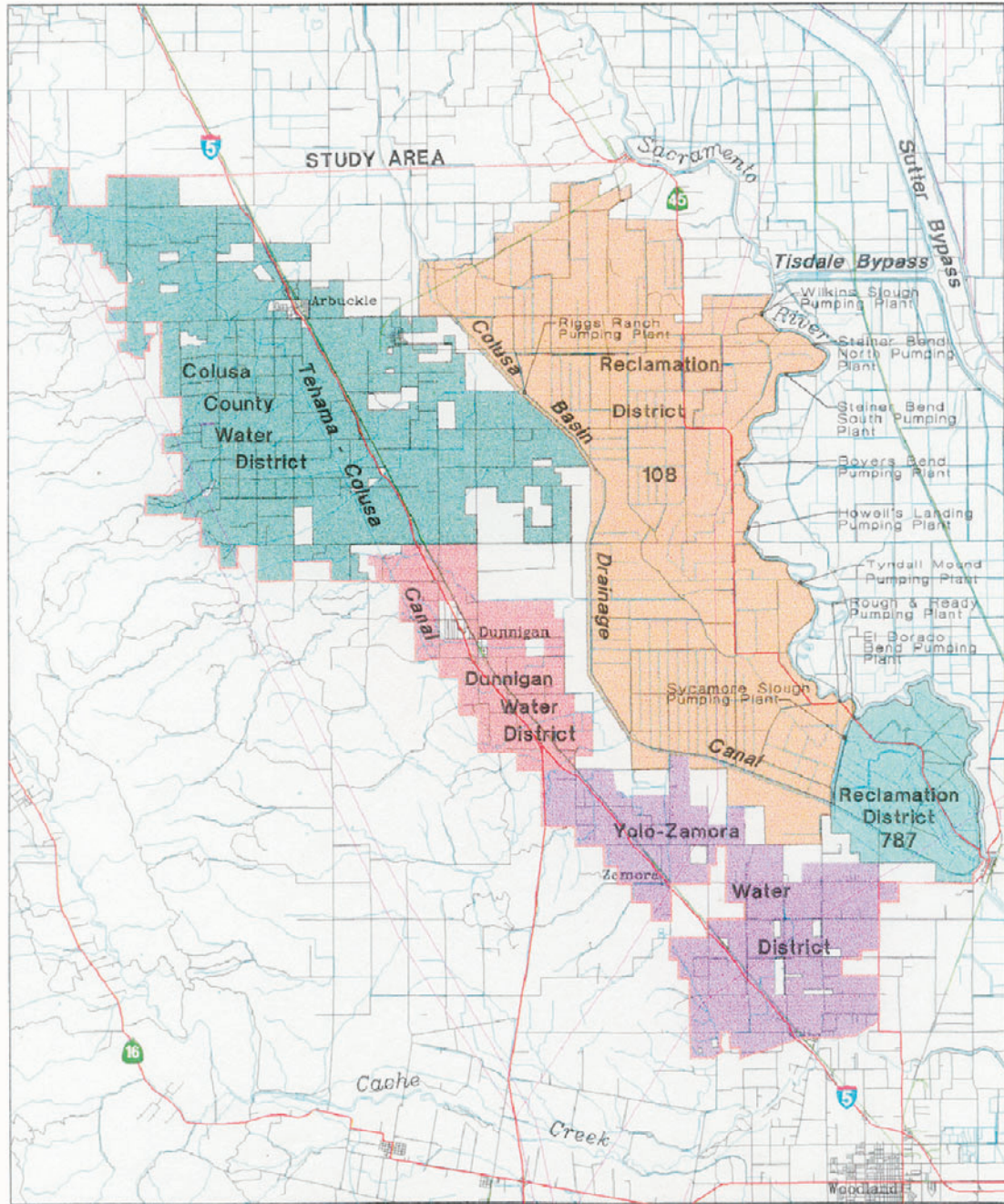


FIGURE 10A-1
PROJECT LOCATION MAP
 RD 108 PILOT WELL DEVELOPMENT/
 CONJUNCTIVE MANAGEMENT PROJECT
 SHORT-TERM PROJECT EVALUATIONS
 SACRAMENTO VALLEY WATER MANAGEMENT AGREEMENT

CH2MHILL
 in association with
MONTGOMERY WATSON HARZA
MBK
SWRI

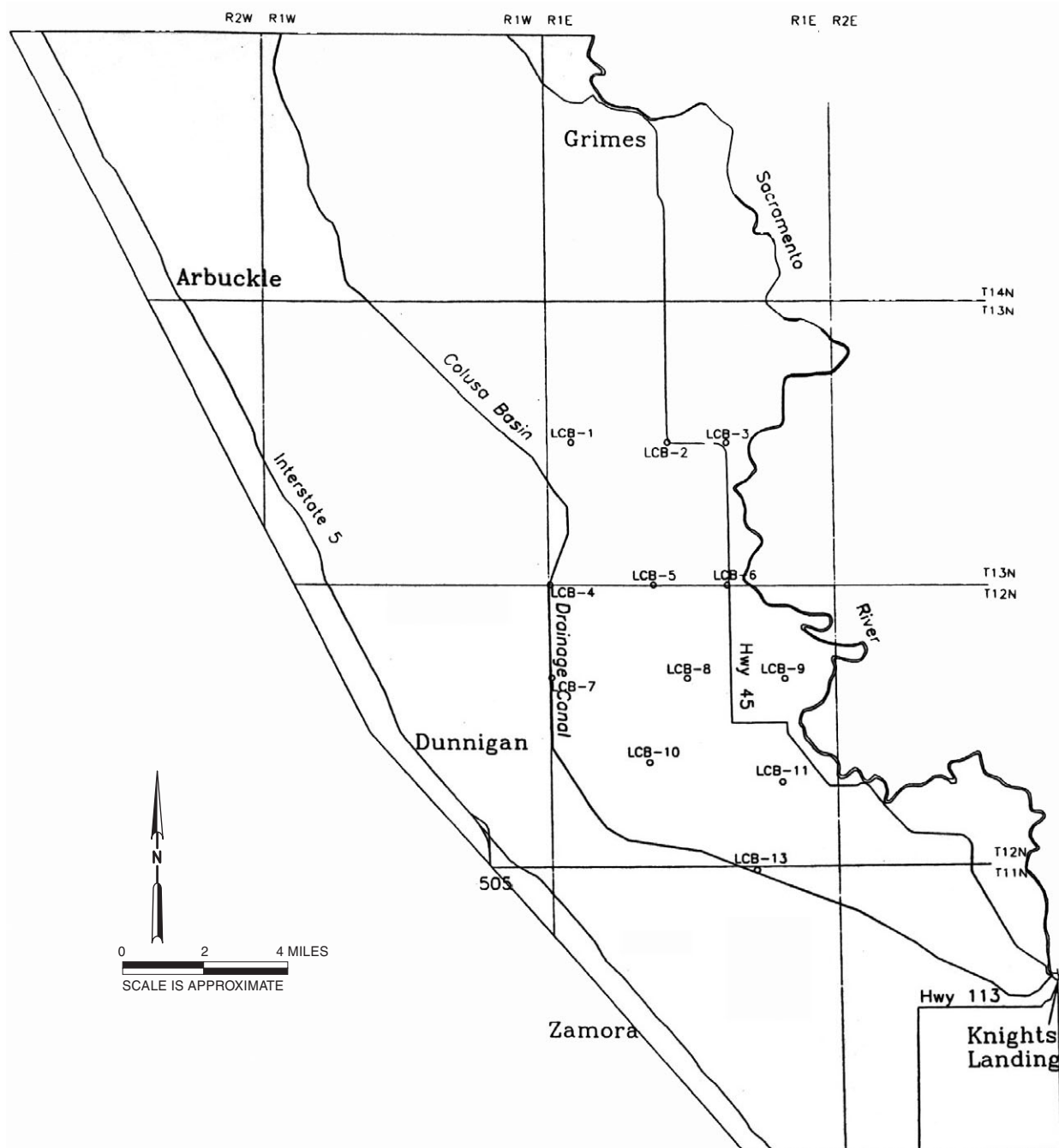


FIGURE 10A-2
LOCATIONS OF EXISTING
MULTI-COMPLETION MONITORING WELLS IN
THE LOWER COLUSA BASIN STUDY AREA
 RD 108 PILOT WELL DEVELOPMENT/
 CONJUNCTIVE MANAGEMENT PROJECT
 SHORT-TERM PROJECT EVALUATIONS
 SACRAMENTO VALLEY WATER MANAGEMENT AGREEMENT

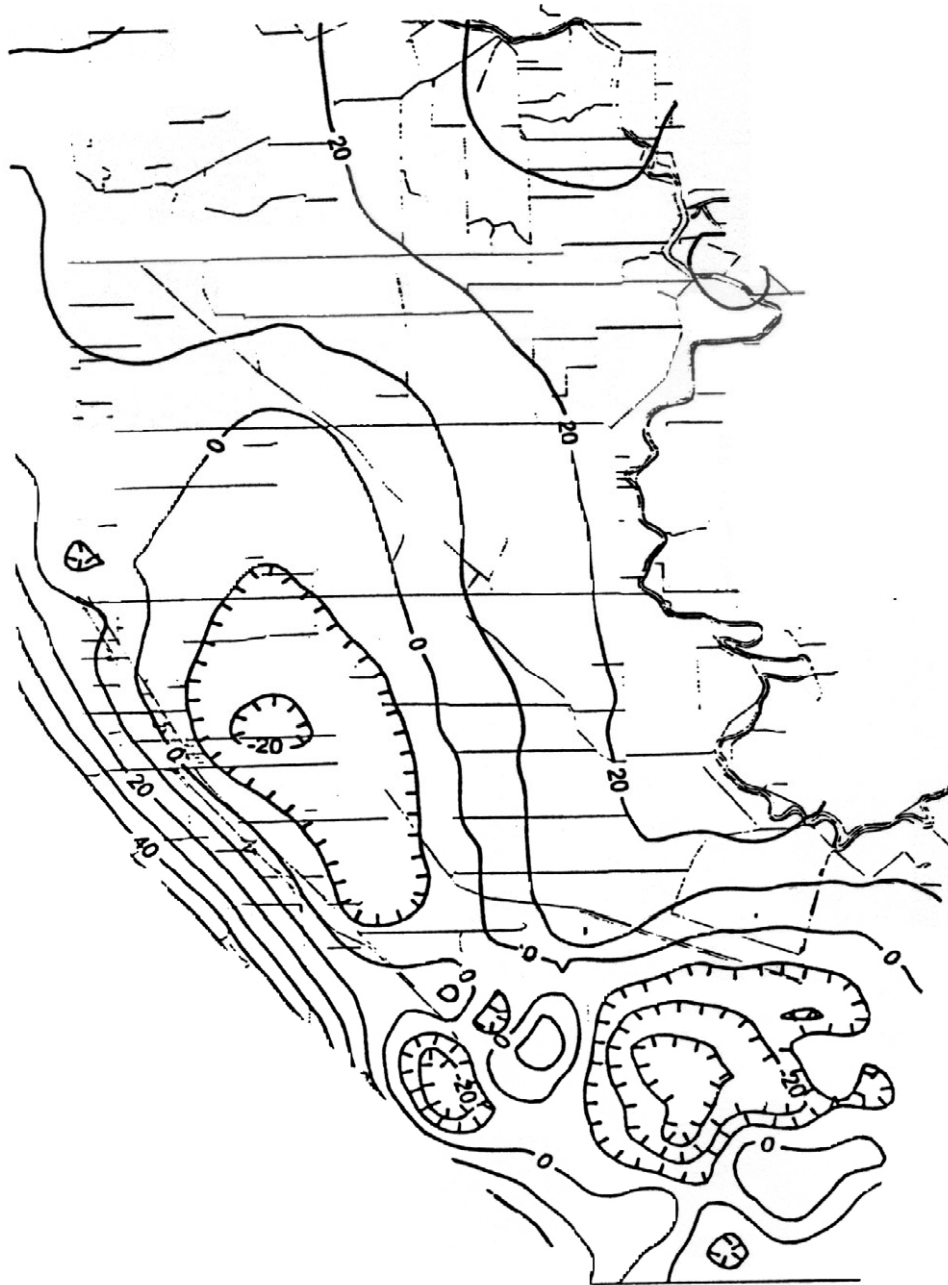


FIGURE 10A-3
SPRING 1976 GROUNDWATER
ELEVATION CONTOUR MAP
RD 108 PILOT WELL DEVELOPMENT/
CONJUNCTIVE MANAGEMENT PROJECT
SHORT-TERM PROJECT EVALUATIONS
SACRAMENTO VALLEY WATER MANAGEMENT AGREEMENT

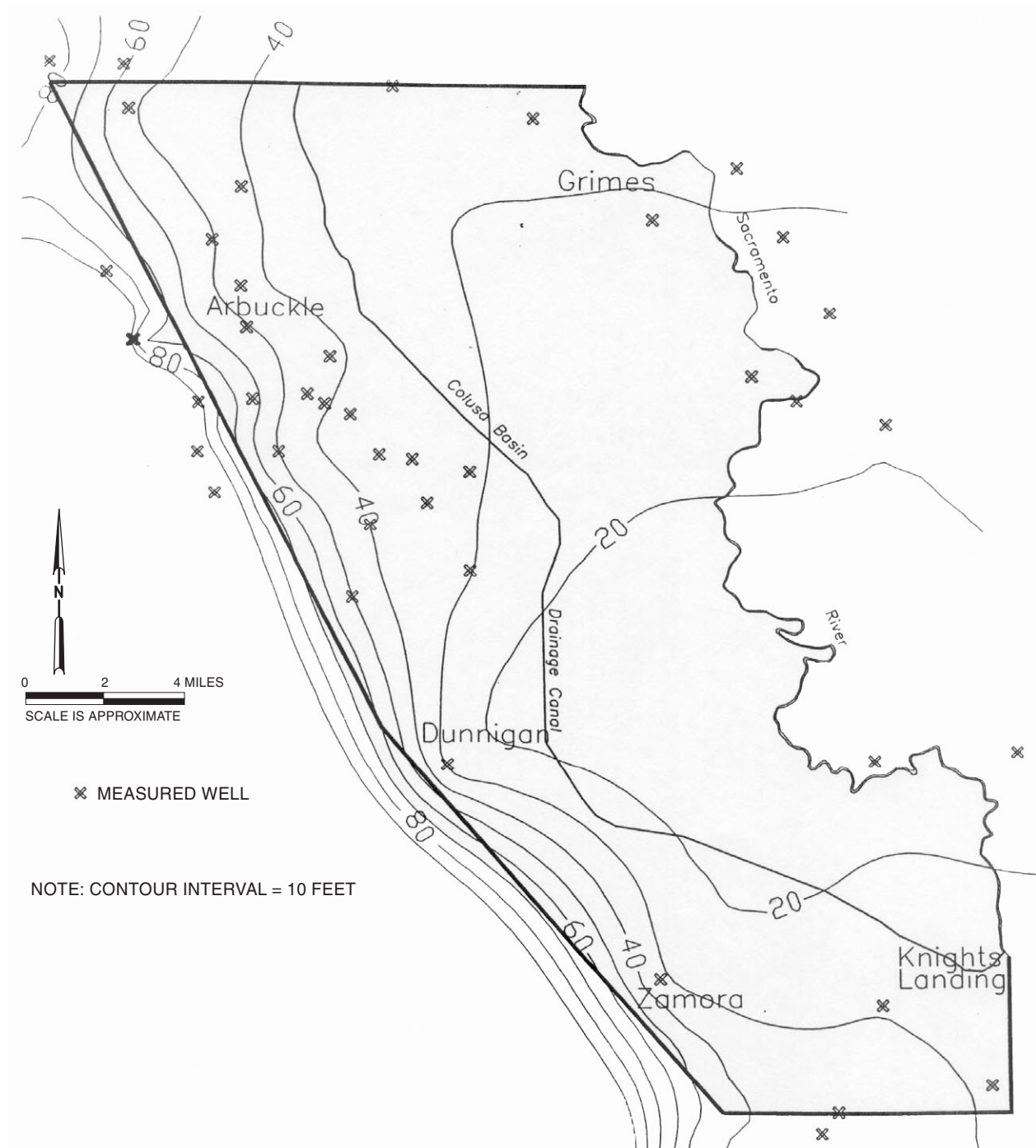


FIGURE 10A-4
SPRING 1996 GROUNDWATER
ELEVATION CONTOUR MAP
 RD 108 PILOT WELL DEVELOPMENT/
 CONJUNCTIVE MANAGEMENT PROJECT
 SHORT-TERM PROJECT EVALUATIONS
 SACRAMENTO VALLEY WATER MANAGEMENT AGREEMENT

**Project 10A—Draft CEQA
Environmental Checklist**

Project 10A—Environmental Factors Potentially Affected:

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a “Potentially Significant Impact” as indicated by the checklist on the following pages.

- | | | |
|--|---|---|
| <input type="checkbox"/> Aesthetics | <input type="checkbox"/> Agriculture Resources | <input type="checkbox"/> Air Quality |
| <input type="checkbox"/> Biological Resources | <input type="checkbox"/> Cultural Resources | <input type="checkbox"/> Geology/Soils |
| <input type="checkbox"/> Hazards & Hazardous Materials | <input checked="" type="checkbox"/> Hydrology/Water Quality | <input type="checkbox"/> Land Use/Planning |
| <input type="checkbox"/> Mineral Resources | <input type="checkbox"/> Noise | <input type="checkbox"/> Population/Housing |
| <input type="checkbox"/> Public Services | <input type="checkbox"/> Recreation | <input type="checkbox"/> Transportation/Traffic |
| <input type="checkbox"/> Utilities/Service Systems | <input type="checkbox"/> Mandatory Findings of Significance | |

Determination:

(To be completed by the Lead Agency)

On the basis of this initial evaluation:

- ☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- ☐ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
- ☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
- ☐ I find that the proposed project MAY have a “potentially significant impact” or “potentially significant unless mitigated” impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
- ☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Signature

Date

Printed Name

For

Issues:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
<u>I. AESTHETICS</u> —Would the project:				
a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Short-term impacts from increased noise and dust emissions could occur as a result of construction. Mitigation measures implemented for noise and air quality would reduce any impacts to a less than significant level.</i>				
d) Create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<u>II. AGRICULTURE RESOURCES</u> —Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>This project would include conveyance facilities and recharge basins. The exact location of the basins are yet to be determined. The majority of land around these locations is used for agricultural purposes. The conveyance facility and recharge basins may require a permanent conversion of potential Prime Farmland, Unique Farmland, or Farmland of Statewide Importance.</i>				
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>See response to II (a) above.</i>				
c) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>See response to II (a) above.</i>				
<u>III. AIR QUALITY</u> —Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Increased air emissions could result from construction of the project. Implementation of best management practices (BMPs) during construction would reduce the amount of emissions, and reduce the impact to a less than significant level.</i>				

Issues:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
IV. BIOLOGICAL RESOURCES —Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act, (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or, impede the use of native wildlife nursery sites?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
V. CULTURAL RESOURCES —Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5? <i>A significant impact would occur if a cultural resource were to be disturbed by activities associated with project development. In the event that an archaeological resource was discovered, appropriate measures would be undertaken to minimize any impacts.</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5? <i>See response to V (a) above.</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature? <i>See response to V (a) above.</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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d) Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>See response to V(a) above.</i>				
<u>VI. GEOLOGY AND SOILS</u> —Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<u>VII. HAZARDS AND HAZARDOUS MATERIALS</u> —				
Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Construction equipment would require the use of potentially hazardous materials. The potential for significant hazardous material spill would be unlikely because of the limited amount of such materials that would be used onsite. If a spill or release of such materials were to occur, it could potentially be significant unless BMPs were implemented.</i>				
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<u>VIII. HYDROLOGY AND WATER QUALITY—</u>				
Would the project:				
a) Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>There is a potential for an increase of erosion and sedimentation from construction activity that would require the implementation of BMPs to reduce any impacts to waterways in and around the project area.</i>				
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted).	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>There are serious concerns about the long-term draw-down of the groundwater table and land subsidence, particularly in dry years. Model development would help in determining the effects of increased groundwater pumping. The impact that groundwater withdrawal would have on existing groundwater supplies is as yet undetermined; however, it is potentially significant because of the complexity of the issue.</i>				
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

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e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i) Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
j) Inundation by seiche, tsunami, or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<u>IX. LAND USE AND PLANNING</u> —Would the project:				
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Short-term impacts from increased noise and dust emissions could occur as a result of construction. Mitigation measures implemented for noise and air quality would reduce any impacts to a less than significant level.</i>				
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<u>X. MINERAL RESOURCES</u> —Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<u>XI. NOISE</u> —Would the project result in:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Short-term noise levels are expected to increase for the duration of construction. These noise increases would be temporary, and mitigation measures would be implemented to reduce any impact to a less than significant level.</i>				
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>See response to XI (a) above.</i>				
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<u>XII. POPULATION AND HOUSING—Would the project:</u>				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<u>XIII. PUBLIC SERVICES—Would the project:</u>				
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<u>XIV. RECREATION—Would the project:</u>				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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b) Does the project include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<u>XV. TRANSPORTATION/TRAFFIC</u> —Would the project:				
a) Cause an increase in traffic, which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Result in inadequate parking capacity?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<u>XVI. UTILITIES AND SERVICE SYSTEMS</u> —				
Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g) Comply with federal, state, and local statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

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<u>XVII. MANDATORY FINDINGS OF SIGNIFICANCE</u>				
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Does the project have environmental effects, which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>